

Community Medicine Sheet (25)

Today we'll talk about maternal morbidity, I'll start by the pre-CAUSES of maternal morbidity! There are physiological & psychological causes.

& since diseases in many cases lead to death, here in community medicine we care about studying morbidity and mortality through maternal-hood, childhood, and even normal periods of a human life.

This all is a part of preventive medicine, & the most important preventive health promotion is the primary health care (PHC).

So we'll go over the causes of maternal morbidity in general and in Jordan specifically.

We won't go deep in each disease right now since you'll be studying about the details of those diseases in your fourth year in medicine school. We'll talk briefly about each disease & the prevalence of the problem (how frequent it is). Accordingly how serious the problem is gives us an impression on the chances of it causing death.

Let's go over some important vocabularies:

Maternal morbidity: is any disease that happens during the maternal period of time.

& again maternal refers to pregnancy & labor.

Labor morbidity includes the main reasons of mothers' death. Examples on that are obstructed labor, hemorrhage & infection.

The professor emphasized on that pregnancy is not a disease, but a more of a physiological stress that may cause sometimes some complications that in turn might lead to death depending on how severe those complications are.

WHO = World Health Organization → is the most common global wise. In Jordan, it's different & we'll talk about it by the end of the lecture. It covers the diseases depending on the most frequent to the least frequent.

The most frequent morbidity causes are:

- 1- the hypertensive disorders
- 2- stillborn: death of the baby at the moment it was born.
- 3- abortion,
- 4- hemorrhage.
- 5- Abortion: termination of a human pregnancy
- 6- Hemorrhage: Bleeding.
- 7- Anemia in pregnancy.
- 8- Diabetes in pregnancy.

Hemorrhage is the most common cause of mortality in the developing world.

- 9- Preterm delivery: The birth of a baby within less than 37 weeks from the beginning of the pregnancy & it's usually accompanied by many complications such as bleeding, or placenta damage Etc!
- 10- Ectopic pregnancy: developing of the fetus outside the womb during pregnancy. It usually develops in the fallopian tubes, instead, which may cause the tubes to rupture, if not treated fast.
- 11- Perineal tears: the area around the vagina being torn.
- 12- Uterine rupture.
- 13- Depression: post-delivery morbidity → psychological morbidity!
- 14- Obstructed labor: during-delivery.

The professor repeated that hypertensive disorders are the most common. Anemia is the 5th or 6th commonest in world but most common in Jordan.

##Physiological causes of maternal morbidity##

- ✓ **Hypertensive disorder of pregnancy** is a chronic hypertension defined by a blood pressure exceeding 40\90 and before pregnancy or before 20 weeks of gestation.

There are two types of hypertensive disease of pregnancy:

- 1) The essential hypertension: in which the woman already carries the disease before pregnancy and during pregnancy the disorder symptoms are exaggerated.
- 2) Pregnancy induced-hypertension or During-pregnancy hypertension: in which a woman before pregnancy does not carry the disease. It is also known as Preeclampsia.

In preeclampsia the woman will only get hypertension after at least 20 weeks of gestation, while in the essential hypertension the woman starts pregnancy with this disease already existing.

Preeclampsia occurs in approximately 5%, which makes it kind of a common morbidity. ESPECIALLY that in the developing world there aren't proper care or methods to prevent such a disease.

In 10% of first pregnancies preeclampsia is likely to appear. If the woman developed preeclampsia in her first pregnancy then it is likely for her to get it again in her 2nd or 3rd pregnancies. It not impossible, but not likely, for a woman who has 3 or 4 kinds and never got preeclampsia in a former pregnancy to get it in the 5th or so pregnancy. Also if the woman has a family history of the disease then she'll most probably get it too if she becomes pregnant.

Hypertensive disorder pregnancy may cause maternal fetal morbidity, & remain a leading source of maternal mortality in the developing world.

The causes of hypertensive disease are not well known, but it's something that has to do with a pregnant woman's autoimmune system in which her body reacts abnormally to this physiological stress:

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→ if she's hypertensive, her blood pressure may get elevated even more.

→ if she's not, she'll start developing the disease after the 20th week of pregnancy.

Hypertensive disease during pregnancy may lead to fetal ischemia & that's why retardation in baby growth may take place. The baby will be pre-mature if it didn't complete the needed time in the mother's uterus.

& since preeclampsia is an autoimmune disease it's normal for it to be more common in first pregnancies.

Risk factors of preeclampsia:

- 1- First pregnancy.
- 2- New partner in maternity.
- 3- Age younger than 18 or older than 35.
- 4- History of preeclampsia.
- 5- Family history of preeclampsia.
- 6- In the black race it is more common than the white race.

Other medical risk factors:

*If the patient is hypertensive (chronic hypertension).

*Secondary causes of chronic hypertension such as hypercortisolism, hyperaldosteronism, pheochromocytoma, or renal artery stenosis. (The professor related hypertensive disease with the decrease of cortisone).

*Preexisting diabetes type 1 or 2.

*Microvascular disease.

*Renal disease.

*SLE = Systemic lupus erythematosus (A systemic autoimmune disease that cause joint pains, skin rashes, tiredness, hypertension, problems in eyes .. etc)

*Obesity → and that's why it is important for health centers to work helping pregnant women lose weight.

Why is it important to know the risk factors of preeclampsia? Because those who have them are at higher risk of developing the disease and so shall be monitored more closely.

✓ **Anemia in pregnancy**

*Another very important morbidity.

*It's the third in Jordan after infections (like vaginal infections).

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*Due to Iron deficiency and hemo dilution.

*A pregnant woman's blood volume increases from 5.5 to 6 L.

*If a woman's hemoglobin (Hb) level during pregnancy is below 11 g/dL then she's considered anemic. During pregnancy, the Hb level becomes lower than it is normally, and it varies according to gestational age. Most women with Hb levels below this limit have normal pregnancies.

*20% to 50% of women are considered anemic according the definition above.

Pathophysiological causes of anemia:

- 1- Hemodilution → dilation during pregnancy
- 2- Iron deficiency → responsible for 95% of anemic pregnant women (most common deficiency in pregnancy).
- 3- Folate deficiency → due to Increased turnover or requirements of folate can occur during pregnancy + it's responsible for 5% of anemia in pregnancy.

Risk factors:

- Twin or multiple pregnancy.
- Poor nutrition, especially multiple vitamin deficiencies.
- Smoking since it reduces absorption of important nutrients.
- Excess alcohol consumption.
- Any disorder that reduces absorption of nutrients.
- Taking anticonvulsant medications (like medications of epilepsy).

Epidemiology (how common it is):

- Worldwide it is 51%
- Most common source of morbidity is the developing world as usual which is 56%
- Developed world is 18%, which is almost one third the ratio in the developing world.
- Africa is 52%
- Asia is 60%
- Europe is 17%
- & North America is 17% too.
- In Jordan in 2012 the ratio increased to become 34%, which makes it a very common morbidity in Jordan, yet it's not number one since the latest studies showed that the vaginal infections are more common.

✓ **Hemorrhage during pregnancy:**

*There are 3 main types:

1- Early pregnancy hemorrhage (1st trimester & 2nd trimester hemorrhage). It is kind of common in the first trimester (20% to 30%) & might be a sign for an ectopic pregnancy. Up to half the women who experience this type of bleeding undergo miscarriage (spontaneous abortion or one that's not on purpose).

2- Pre-natal hemorrhage, if it was during the last trimester (3rd trimester).

3- Post labor or postpartum hemorrhage, if it was after or during labor.

Abortion: Bleeding before 28 weeks of gestation.

Prematurity labor: Labor before 36 weeks of gestation.

Normal labor: Labor at or after 36 weeks of gestation.

About Pre-natal hemorrhage:

Any vaginal bleeding during the last 6 months of a 9 month pregnancy is considered abnormal, and is most often associated with a problem with the *PLACENTA* (2nd and 3rd trimesters), So pre-natal hemorrhage is usually due to complications of the placenta.

There are 2 main placenta problems:

1- Placenta Previa:

The placenta is inserted very close to the cervix of the uterus, so when the fetus grow up and the uterus is extended, the placenta starts bleeding because of the rupture of some of its blood vessels. This type is seen in about 10% of pregnancies in the 2nd trimester and is rarely seen at term because most of cases resolve by reaching the term.

2- Abruption of the placenta:

Abruption = rupture.

This type occurs when a normal placenta separates from the uterine wall prematurely and blood pools between the placenta and the uterus.

& those are the main 2 causes of bleeding in the last trimester.

How serious are they?

They are very serious, but the placenta previa is usually less serious than the 2nd type because the rupture of placenta usually terminates pregnancy.

Late pregnancy bleeding may also be caused by *UTERINE RUPTURE*, which is the splitting of the uterus. It leads to severe bleeding & occurs more in multiple pregnancy.

Let's talk now about post-partum hemorrhage (PPH) : نزيف ما بعد الولادة :

It is any bleeding that results in hemodynamic instability if untreated. Any blood loss that is greater than 1000 mL is also considered a PPH.

What are the important causes of PPH:

- 1- Uterine atony, it is where the uterus is so soft and does not contract well, and so the placenta keeps bleeding. This usually occurs in the first trimester.
- 2- Retention of part or all of the placenta.
- 3- Trauma during delivery.
- 4- Uterine inversion.

Risk factors of hemorrhage (They are important to be well-known since hemorrhage is the main cause of mortality):

- 1- Prolonged third stage of labor.
- 2- Preeclampsia.
- 3- Multiple gestations.
- 4- Arrest of descent: when the baby wouldn't descend or appear to descend during labor.
- 5- Maternal hypotension.
- 6- Coagulation abnormalities.
- 7- Lacerations of the cervix, vagina.
- 8- Asian or Hispanic ethnicity.
- 9- Delivery with forceps or vacuum → Using forceps or ventouse to assist in delivery. Those two methods are only used when they are very necessary in cases like awkward position of a baby or mother exhaustion while delivering.
- 10- Nullipara → no pregnancy.
- 11- Multiparity.
- 12- polyhydramnios → A condition in which the amniotic fluid is too much inside the amniotic sac.

Third stage of labor usually lasts from 6 to 8 hours. If it lasted for more than that then it'll usually cause atony of the uterus.

✓ Gestational diabetes

Another important morbidity during pregnancy, & usually it is more common to those who are already diabetic

Gestational diabetes mellitus (GDM) is defined as glucose intolerance that begins or is first detected during pregnancy. Glucose rate increases in the blood of some women while pregnancy, but after pregnancy the blood sugar drops down back to its normal state.

Risk factors are:

- 1- Maternal age > 40 years old are under higher risk.
- 2- Parity → Multiparity!
- 3- Previous Neonatal Death.

How common is it?

*It is more common in older pregnant females as we mentioned; it is 1.5-3 times more in pregnant females older than 40 years.

*Most common in Asia; especially in Northeast and southern Asia, & least common in North America (maybe because of obesity or nutrition habits).

*Less common in rural areas than in metropolitan areas; maybe because of differences in dietary trends.

##Psychological causes of maternal morbidity##

They are usually postpartum.

Postpartum emotional distress is fairly common after pregnancy and ranges from mild **postpartum blues**, a condition characterized by tearfulness, feeling low, & depressive symptoms. This distress is usually passing by, but sometimes it may develop into severe depression (**Postpartum depression**), or even into **postpartum psychosis**, which might cause a threat to the life of the mother or baby.

The difference between the psychosis and depression is that psychosis defines a patient who is out of reality and she starts having illusions, hallucinations and is at high risk of suicide, while in depression the patient in touch with the reality she does not undergo hallucinations or illusions. That's why postpartum psychosis is more serious than postpartum depression.

Among depression types, the most severe one is psychotic depression.

Postpartum depression affects up to 34 % of women and typically occurs in the early postpartum weeks. Here we're talking about the postpartum blues or the physiological depression and not the psychotic one. It may persist for a year or more. Depression is not necessarily one of the leading symptoms although it is usually evident.

Other symptoms include exhaustion, irritability, weepiness, low energy and motivational levels, feelings of helplessness and hopelessness, loss of libido and appetite, sleep disturbances, headache, asthma, backache, vaginal discharge and abdominal pain.

Asthma is also an autoimmune disease.

Any autoimmune disease is at high risk to develop diseases that lead to depression.

Symptoms may also include obsessional thinking, fear of harming the baby or self, suicidal thoughts and depersonalization.

Blues do not usually need a serious treatment, but if the woman is noticeably getting into deep depression, then treatment must be sought. By offering the mother the right treatment, depression will be treated within a year. Supporting the woman in taking care of the baby and house would help. Listening to her and providing encouragement is important as well.

Assist the mother to rethink the image of motherhood and assist the couple to think through their respective roles (parents).

If depression is severe, consider antidepressant drugs, but be aware that medication can pass through breast-milk and that breastfeeding should be reassessed. This is one of the complications of breast feeding.

Care can be home-based or can be offered through day-care clinics. Local support groups of women who have had similar experiences are most valuable. Supportive groups are available for all diseases not just pregnancy.

The professor reemphasized that postpartum psychosis is a very serious illness that needs to be treated because the mother won't be able to take care of neither herself nor the baby. Postpartum psychosis affects about 1% of pregnant women. The cause is unknown, although about half of the women experiencing psychosis usually have a history of mental illness, so it is not a normal physiological cause. It is a disease.

Postpartum psychosis is characterized by delusions or hallucinations, insomnia, a preoccupation with the baby, severe depression, anxiety, despair and suicidal impulses. Recovery from this disease is very likely, but 50% of women will have a relapse with subsequent deliveries.

“Anybody can gain the ability of making things complicated; the real talent lies in making them simple. I hope you find this sheet simple x3” !